

REMARKS

Claims 1-6 are active in the application.

Claims 1-6 were finally rejected under 35 USC 103(a) as being unpatentable over
5 Yasuyuki et al. in view of Miura et al. These rejections are traversed by amendment.
The amendment simplifies issues and places the case in *prima facie* condition for
allowance. As such, entry and consideration of the amendment is requested.

Claims 1 and 5 have been amended to include the limitation that "the first and
10 second waveguides are integrated optical waveguides disposed on a waveguide
substrate". The new feature is supported by Figs. 1, 2 and 3 of the patent application,
which each show that the waveguides 3a 3b are integrated waveguides on the waveguide
substrate 2. This feature is also supported by the specification at page 5, lines 15-16. The
waveguides 3a 3b are not optical fibers but are instead fabricated on the waveguide
substrate by thin film deposition and patterning, as known in the art of integrated optics
15 manufacturing technology.

Claim 1 has also been amended to include the feature that "the light-emitting
20 element and light-receiving element are disposed on opposite sides of the waveguide
substrate." This feature is clearly supported by Figs. 1 and 2 of the application which
show the light-emitting and light-receiving elements on opposite sides of the waveguide
substrate. Similarly, claim 5 has been amended to require that "the light-emitting and
light-receiving element are disposed on opposite sides of said light-blocking plate".

Claim 1, as amended, is patentable over the proposed combination of Yasuyuki et
al. and Miura et al. Specifically, Yasuyuki et al. show a module with light-emitting (LD)
and light-receiving (PD) elements coupled to integrated optical waveguides. However,
25 Yasuyuki et al. show that the LD and PD are disposed on the same side of the waveguide
substrate. Apparently, this arrangement is necessitated by the chip 24, which is shown as
covering both the LD and PD. By comparison, amended claim 1 requires that the light-
emitting and light-receiving elements be disposed on opposite sides of the waveguide
substrate. This arrangement tends to reduce the stray light from the light-emitting element
30 incident upon the light-receiving element compared to the arrangement of Yasuyuki et
al.. Also, the present arrangement allows both the photodiode 7 and laser 4 to be coupled

to the optical fiber 5 in a small package. Miura et al. also fail to teach that the light-emitting and light-receiving elements can be disposed on opposite sides of a waveguide substrate. In fact, Miura et al. teach only a module with a single element (e.g. LD or PD, but not both). Hence, no possible combination of Yasuyuki et al. and Miura et al. can produce the present invention as claimed in claim 1.

Claim 5, as amended, requires a light-blocking plate 15 disposed above (and not intersecting) an integrated optical waveguide 3a. The Examiner identified cover 40 (similar to block 34) of Miura et al. as being the same as the present light blocking plate 15. The cover 40 is illustrated in Fig. 11, and the block 34 is illustrated in Figs. 5, 6 and 10. The cover 40, however, is provided to prevent the adverse effect on the optical element 10 due to the injection of the epoxy resin 24. Accordingly, the cover 40 disclosed in Miura is irrelevant to the light-blocking plate defined in claim 5 of the present application.

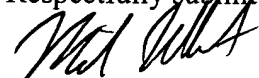
Miura et al. teaches the use of an optical fiber, not an integrated optical waveguide as in the present invention. This is significant because both the cover 40 and block 34 are designed for use with an optical fiber, and cannot be modified to be used with an integrated optical waveguide. Specifically, the block 34 and cover 40 each have a V-groove 36 42, respectively, so as to accommodate an optical fiber. More specifically, the V-groove 42 36 forms a guide hole (see col. 7, lines 43-45). The block 34 or cover 40 cannot be reasonably combined with the module of Yasuyuki et al. since there exists no motivation to employ the block 34 or cover 40 over an integrated optical waveguide instead of an optical fiber. In fact, using the block 34 or cover 40 with an integrated optical waveguide will result in large amounts of light leakage through the V-groove. Accordingly, amended claim 5 is patentable over any conceivable combination of Yasuyuki et al. and Miura et al.

In view of the foregoing, it is respectfully requested that the application be reconsidered, that claims 1-6 be allowed, and that the application be passed to issue.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

A provisional petition is hereby made for any extension of time necessary for the continued pendency during the life of this application. Please charge any fees for such provisional petition and any deficiencies in fees and credit any overpayment of fees for the petition or for entry of this amendment to Attorney's Deposit Account No. 50-2041 (Whitham, Curtis & Christofferson P.C.).

Respectfully submitted,



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